DOELAP Information Notice

CONFIGURATION OF DOELAP DOSIMETERS

JULY 13, 2006

PURPOSE

To clarify the intent of the original DOELAP Information Advisory that was issued in December 2005 regarding dosimeters that should be submitted to DOELAP for accreditation.

REGULATORY REQUIREMENT

10 CFR 835.402(b) states that "External dose monitoring programs implemented to demonstrate compliance with §835.402(a) shall be adequate to demonstrate compliance with the dose limits established in subpart C of this part and shall be: (1) Accredited, or excepted from accreditation, in accordance with the DOE Laboratory Accreditation Program for Personnel Dosimetry; or (2) Determined by the Secretarial Officer responsible for environment, safety and health matters to have performance substantially equivalent to that of programs accredited under the DOE Laboratory Accreditation Program for Personnel Dosimetry."

CLARIFICATION

Dosimeters that are required to be DOELAP accredited are those whole body dosimeters (extremity dosimetry accreditation is currently voluntary) used to demonstrate compliance with the dose limits as part of a required dosimetry program (e.g. workers have the potential to exceed 100 mrem per year). DOELAP accredits a dosimeter configuration (dosimeter, holder, and reader) and not the conditions under which the dosimeter may be used.

For example, the permanent placement of a dosimeter inside a supplemental holder that forms a fixed dosimeter assembly for the duration of the wear period would be considered to be a dosimeter configuration different from that accredited. Whereas temporary placement of the dosimeter inside a thin plastic bag for contamination control or temporary placement worn under anti-contamination clothing or under a lead apron would be considered specific field uses of an accredited dosimeter. Such uses may or may not be the proper uses of the accredited dosimeter, depending upon the circumstances. The fixed configuration would require performance testing or a determination of technical equivalency. The field use would not.

Other situations that have been brought to DOELAP's attention have related to sites using dosimeters in a configuration slightly different from that originally accredited:

- An dosimeter accredited based upon the response of a neutron sensitive element and a supplemental CR-39. The dosimeter may be used without the CR-39 element present provided that element is not in front of or behind the other active components of the dosimeter and the CR-39 response was not used during performance testing and accreditation.
- The addition of a Personnel Neutron Accident Dosimeter (PNAD) adjacent to an accredited dosimeter is generally acceptable.
- Any changes in dosimeter configuration (vs. field use) that affect the filters (materials, thickness) in front of or behind the active dosimeter elements generally would require DOELAP testing.

It is suggested that if a site plans to use a dosimeter in more than a single configuration, such use should be noted in their DOELAP application. While only one configuration would most likely be tested, both configurations would be listed on the Conditions of Accreditation. The advantage to the site is that questions about the scope of accreditation that may arise either due to audits or future litigation are easily put to rest.

The original advisory was not intended to indicate that all uses of a dosimeter must be approved by DOELAP. It is up to the Operations/Site offices, in cooperation with their contractors, to decide what constitutes a dosimeter configuration, whether the dosimeter needs to be submitted to DOELAP for accreditation, and the proper field use of accredited dosimeters. The DOELAP staff are willing to assist in answering any questions that might arise about whether a particular situation is related to dosimeter configuration or field use.

Procedural Change

Background

DOE/EH-0027, *Department of Energy Standard for the Performance Testing of Personnel Dosimetry Systems,* states that dosimeters shall be attached to the surface of the phantom and that the point of calibration shall coincide with the center of the front face of the phatom.

Some dosimeters designs have clips that prevent the dosimeter from being mounted flush with the phantom. In the past, applicants have had the option of providing an effective "stand-off" distance from the phantom face to the sensitive elements of the dosimeter, and DOELAP has made distance corrections to account for the slightly shorter source to dosimeter distance.

Revised Procedure

Performance testing procedures will no longer correct for dimensional variances in dosimeter designs. Dosimeters and their algorithms should be designed to properly measure the dose at the front surface of the phantom (a surrogate for the monitored worker) and not at some distance in front of the phantom.

The revised procedure will be effective beginning with Test Session 2006-B.

Questions concerning these issues should be directed to either Scott Schwahn at (208) 526-0324 or by e-mail at schwahso@id.doe.gov, or Robert Loesch at (301) 903-4443 or by e-mail at robert.loesch@eh.doe.gov.

Robert M. Loesch
DOELAP Administrator
Office of Quality Assurance Programs

Scott O. Schwahn
DOELAP Performance Evaluation Program Administrator
Radiological and Environmental Sciences Laboratory